Spotted Bat (*Euderma maculatum*)

Species Status Statement.

Distribution

Spotted bat occurs across large portions of the mountainous region of western North America, from central Mexico to southern British Columbia (Luce and Keinath 2007). Its patchy distribution probably encompasses all of Utah, though records are largely lacking from the northern- and western-most portions of the state (Oliver et al. 2000, UDWR data).

Table 1. Utah counties currently occupied by this species.

Spotted Bat	
BEAVER	SALT LAKE
DUCHESNE	SAN JUAN
EMERY	UINTAH
GARFIELD	UTAH
GRAND	WASHINGTON
IRON	WAYNE
KANE	

Abundance and Trends

For a long time, authorities considered spotted bat a rare species, because of an extremely low number of specimens and captures (Watkins 1977, Fenton et al. 1987). Surveyors now recognize that this species is relatively difficult to capture or detect. Consequently, estimating statewide population status is problematic. Contemporary belief is that this species can be locally abundant where habitat conditions are suitable, resulting in small populations scattered across the range (Luce and Keinath 2007).

Management designations for spotted bat vary across its range from “state threatened” (NM, NV) to “protected nongame” (ID). Various Bureau of Land Management and US Forest Service administrative units consider this species “sensitive”. The Western Bat Working Group lists it as a species at “high risk of imperilment” in most of Utah.

Statement of Habitat Needs and Threats to the Species.

Habitat Needs

Most authors associate this species with cliffs, which are its primary roost habitat (Fenton et al. 1987, Luce and Keinath 2004). Indeed, one study described spotted bat as a “nearly obligate

cliff-rooster" (Pierson and Rainey 1998). Chambers et al. (2011) described roost sites in northern Arizona as "sheer cliffs near perennial water sources."

Though reported from many vegetative communities, most spotted bat captures happen in open areas. Wet meadow and riparian habitats appear to be preferred foraging sites (Wai-Ping and Fenton 1989, Williams et al. 2006, Chambers et al. 2011). Several researchers reported that spotted bats require cliffs in close proximity to preferred foraging habitat, and that this bat does not travel more than approximately 10 miles between roosts and feeding locales (Fenton et al. 1987, Wai-Ping and Fenton 1989, Luce and Keinath 2007). Conversely, Chambers et al. (2011) showed that spotted bats in northern Arizona had large home ranges, and would travel as far as 38.5 km from roost. They confirmed the association between cliffs and foraging areas.

Threats to the Species

Luce and Keinath (2007) listed several potential threats to spotted bats: loss of wet meadow habitats, collection/research, pesticides, and human disturbance at roosts.

- Mountain meadow habitat makes up only 0.14% of Utah's landscape and is a key habitat in the Utah Wildlife Action Plan (UDWR 2015). This habitat is threatened by improper grazing, drought, water diversion and siltation. Other moist habitats this bat uses are also limited in distribution in Utah, and experience the same threats. Because spotted bats are locally abundant where cliffs and moist habitats coincide, habitat alteration at such places could lead to the loss of local populations. (Wai-Ping and Fenton 1989, Pierson and Rainey 1998, Williams et al. 2006, Chambers et al. 2011).
- Spotted bats feed primarily on moths (Luce et al 2007) and forage over both public and private lands (Chambers et al. 2011). Broadcast spraying pesticides to control insects can threaten spotted bats in two ways: direct poisoning and reduction in their food sources (Luce and Keinath 2007).
- Most bats display some susceptibility to disturbance, especially at roosts. Spotted bats may be somewhat protected from human disturbance as they often choose to roost in inaccessible or remote cliffs (Luce et al 2007, Chambers et al. 2011). However, recreational rock climbing is gaining in popularity, and cliff inaccessibility is no longer a guarantee of safety.
- In several accounts, spotted bats are described as being fragile animals, susceptible to injury (Easterla 1965, Luce and Keinath 2007). Their large ears, coloration and unique markings make them a desired specimen for research and museum collections. They are so delicate that Fenton et al. (1983) considered scientific research and collection to be the primary threat to this species. One Utah site that is recognized as being of historical significance for spotted bats - Fort Pearce Wash - is a highly-sought sampling site for bat researchers to this day. Though spotted bats can still be detected there, DWR personnel have not caught any spotted bats at Fort Pearce in more than a decade (DWR files).

Table 2. Summary of a statewide-scale threat assessment and prioritization completed in 2013 (UDWR 2015; Salafsky et al. 2008). Note that these threat rankings do not apply at the scale of local populations; a threat ranked medium at the overall, statewide level may be the most important threat to a local population. The threat assessment provides more information not presented here, including lower ranked threats, crucial data gaps, and definitions for all the threats and data gaps.

Spotted Bat
High
Disease – Alien Organisms
Medium
Agricultural Pollution
Droughts
Habitat Shifting and Alteration
Invasive Plant Species – Non-native
Water Developments for Livestock

Rationale for Designation.

Surveyors encounter spotted bat infrequently across its wide range. Though locally common, the species exhibits low densities across Utah and the west (Easterla 1965, Fenton et al. 1987, Luce and Keinath 2007, DWR files). Limited abundance around specific natural features (cliffs near permanent water and moist meadows, such as Fort Pearce Wash) places local populations at risk from site-specific disturbances (habitat loss, unusual mortality events, human intrusion, etc.). Loss of these isolated populations would be detrimental to overall population viability through decreased numbers and genetic exchange.

Economic Impacts of Sensitive Species Designation.

Sensitive species designation is intended to facilitate management of this species, which is required to prevent Endangered Species Act listing and lessen related economic impacts. The listing of other bat species in eastern states has prompted requirements for extensive regulatory compliance for a wide variety of project categories including transportation, utility rights-of-way, habitat management, and forest management. A spotted bat ESA listing could result in the closure of climbing routes where roosts are found, and could impact livestock water and grazing management in areas with suitable foraging habitat.

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